IN THE CLAIMS:

Claims 1 through 19, 25 through 30, 42 through 44, 48 through 65, and 73 through 86 have been amended herein. Please note that all claims currently pending and under consideration in the referenced application are shown below. Please enter these claims as amended. This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (currently amended) A method of applying viscous material to at least one semiconductor element, ~~said~~ the method comprising:

providing a receptacle including at least one viscous material pool containing viscous material having an exposed surface extending upwardly to a height therein, ~~said~~ the at least one viscous material pool including at least one opening to provide access to at least ~~said~~ the exposed surface of ~~said~~ the viscous material;

providing at least one stop proximate ~~said~~ the receptacle;

controlling the height of ~~said~~ the exposed surface of ~~said~~ the viscous material;

providing at least one semiconductor element having a first surface and at least one other surface above the first surface; and

placing the at least one semiconductor element against ~~said~~ the at least one stop such that only a specific portion of the first surface ~~said~~ the at least one semiconductor element contacts ~~said~~ the exposed surface of ~~said~~ the viscous material.

2. (currently amended) The method according to claim 1, wherein ~~said~~ providing a receptacle including at least one viscous material pool containing viscous material comprises providing ~~said~~ the at least one viscous material pool containing adhesive or polyimide.

3. (currently amended) The method according to claim 2, wherein ~~said~~ providing a receptacle including at least one viscous material pool containing viscous material comprises providing ~~said~~ the at least one viscous material pool containing adhesive selected from the group consisting of thermoplastics, thermoset resins, flowable pastes, and B-stage adhesive materials.

4. (currently amended) The method according to claim 1, wherein ~~said~~ placing at least one semiconductor element against ~~said~~ the at least one stop comprises extending ~~said~~ the specific portion of ~~said~~ the at least one semiconductor element beyond a top surface of the exposed surface of ~~said~~ the viscous material.

5. (currently amended) The method according to claim 4, wherein ~~said~~ extending comprises immersing ~~said~~ the specific portion of ~~said~~ the at least one semiconductor element beyond ~~said~~ the top surface of the exposed surface of ~~said~~ the viscous material for a time sufficient to allow the viscous material to wet ~~said~~ the specific portion of ~~said~~ the at least one semiconductor element.

6. (currently amended) The method according to claim 5, wherein ~~said~~ extending comprises immersing ~~said~~ the specific portion of ~~said~~ the at least one semiconductor element beyond ~~said~~ the top surface of the exposed surface of ~~said~~ the viscous material for approximately 10 to 25 milliseconds.

7. (currently amended) The method according to claim 1, wherein ~~said~~ placing at least one semiconductor element against ~~said~~ the at least one stop comprises extending ~~said~~ the specific portion of said at least one semiconductor element beyond a top surface of the exposed surface of ~~said~~ the viscous material without breaking the surface tension of ~~said~~ the viscous material.

8. (currently amended) The method according to claim 1, wherein ~~said~~ providing a receptacle comprises providing ~~said~~ the receptacle shaped such that the exposed surface of the viscous material is presented in a precise location and configuration.

9. (currently amended) The method according to claim 1, wherein ~~said~~ placing at least one semiconductor element comprises placing at least one of a lead finger, a carrier substrate, a bond pad and a trace pad above ~~said~~ the at least one opening.

10. (currently amended) The method according to claim 1, wherein ~~said~~ placing at least one semiconductor element comprises aligning ~~said~~ the at least one semiconductor element above ~~said~~ the at least one opening.

11. (currently amended) The method according to claim 1, wherein ~~said~~ placing at least one semiconductor element comprises biasing ~~said~~ the at least one semiconductor element downward proximate the viscous material.

12. (currently amended) The method according to claim 11, wherein ~~said~~ biasing comprises providing at least one of a hydraulic biasing mechanism, a pneumatic biasing mechanism, and an electrically-powered biasing mechanism configured to place ~~said~~ the at least one semiconductor element proximate ~~said~~ the viscous material.

13. (currently amended) The method according to claim 1, wherein ~~said~~ placing at least one semiconductor element comprises raising ~~said~~ the at least one viscous material pool upward proximate ~~said~~ the at least one semiconductor element.

14. (currently amended) The method according to claim 1, wherein ~~said~~ controlling comprises pumping ~~said~~ the viscous material into ~~said~~ the at least one viscous material pool.

15. (currently amended) The method according to claim 1, further comprising pumping ~~said~~ the viscous material to another height above ~~said~~ the at least one stop sufficient to contact ~~said~~ the specific portion of ~~said~~ the at least one semiconductor element.

16. (currently amended) The method according to claim 15, wherein ~~said~~ pumping comprises creating a moving wave of ~~said~~ the viscous material traveling across ~~said~~ the at least one viscous material pool.

17. (currently amended) The method according to claim 1, wherein ~~said~~ placing at least one semiconductor element comprises applying a layer of ~~said~~ the viscous material having a thickness between 0.1 to 15 mils on ~~said~~ the specific portion of ~~said~~ the at least one semiconductor element.

18. (currently amended) The method according to claim 1, further comprising coating at least ~~said~~ the specific portion of the at least one semiconductor element with a surfactant prior to ~~said~~ placing the ~~said~~ at least one semiconductor element against ~~said~~ the at least one stop.

19. (currently amended) The method according to claim 1, further comprising adding an adhesion promoter to ~~said~~ the viscous material, wherein ~~said~~ the adhesion promoter is selected from the group consisting of silane, siloxane, and polyimide siloxane.

20. (Withdrawn) The method according to claim 1, wherein said controlling the height of the exposed surface of said viscous material comprises leveling said exposed surface.

21. (Withdrawn) The method according to claim 20, wherein said leveling comprises:
providing said viscous material to said at least one viscous material pool such that said exposed surface of said viscous material reaches an initial exposed surface height higher than a desired exposed surface height; and
flattening said initial exposed surface height to the desired exposed surface height.

22. (Withdrawn) The method according to claim 21, wherein said flattening comprises metering said initial exposed surface height with a wiper.

23. (Withdrawn) The method according to claim 21, wherein said providing said viscous material comprises pumping said viscous material into said at least one viscous material pool.

24. (Withdrawn) The method according to claim 21, wherein said flattening said initial exposed surface height comprises drawing back said viscous material to flatten said exposed surface of said viscous material.

25. (currently amended) The method according to claim 1, wherein ~~said~~ controlling the height of the ~~said~~ exposed surface of ~~said~~ the viscous material comprises employing a detection mechanism.

26. (currently amended) The method according to claim 25, wherein ~~said~~ controlling the height of ~~said~~ the exposed surface of ~~said~~ the viscous material comprises:
delivering the ~~said~~ viscous material to ~~said~~ the at least one viscous material pool;
providing ~~said~~ the detection mechanism comprising a transmitter, a receiver, and a control signal;
determining the height of ~~said~~ the exposed surface with said transmitter and ~~said~~ the receiver; and
generating ~~said~~ the control signal to control delivery of ~~said~~ the viscous material to ~~said~~ the at least one viscous material pool.

27. (currently amended) The method according to claim 26, wherein ~~said~~ generating the~~said~~ control signal comprises triggering a pump to stop delivering ~~said~~ the viscous material to ~~said~~ the at least one viscous material pool when a desired height of ~~said~~ the exposed surface is achieved.

28. (currently amended) The method according to claim 26, wherein ~~said~~ generating ~~said~~ the control signal comprises triggering a valve to shut to prevent ~~said~~ the viscous material from entering ~~said~~ the at least one viscous material pool.

29. (currently amended) The method according to claim 25, wherein ~~said~~ employing a detection mechanism comprises providing a laser transmitter, wherein a light beam from ~~said~~ the laser transmitter is altered by the exposed surface and wherein a receiver detects the alteration of ~~said~~ the light beam and then generates a control signal.

30. (currently amended) The method according to claim 25, wherein ~~said~~ employing a detection mechanism comprises providing an ultrasonic transmitter, wherein an ultrasonic sound wave from the ultrasonic transmitter is altered by the exposed surface and wherein a receiver detects the alteration in the ultrasonic sound wave and then generates a control signal.

31. (Withdrawn) The method according to claim 1, wherein said controlling comprises providing a coating stencil proximate an upper surface of said receptacle, said coating stencil including:

a generally flat and generally horizontal top surface; and

a plurality of apertures aligned to apply said viscous material to said specific portion of said at least one semiconductor element, said plurality of apertures sized and configured to control extrusion of said viscous material through said coating stencil to increase the exposed surface of said viscous material.

32. (Withdrawn) The method according to claim 31, wherein said providing a coating stencil comprises providing said coating stencil wherein the plurality of apertures are substantially rectangular in shape.

33. (Withdrawn) The method according to claim 31, wherein said providing a coating stencil comprises providing said coating stencil wherein the plurality of apertures of said coating stencil are substantially square in shape.

34. (Withdrawn) The method according to claim 31, wherein said providing a coating stencil comprises said sizing and said configuring said plurality of apertures of said coating stencil as a result of considering a viscosity of said viscous material.

35. (Withdrawn) The method according to claim 34, wherein said providing a coating stencil comprises said sizing and said configuring said plurality of apertures of said coating stencil to suit a viscous material viscosity ranging from approximately 1000 to 500,000 centipoise.

36. (Withdrawn) The method according to claim 34, wherein said providing a coating stencil comprises said sizing and said configuring said plurality of apertures of said coating stencil to optimally accommodate a viscous material viscosity of approximately 62,000 centipoise.

37. (Withdrawn) The method according to claim 34, wherein said providing a coating stencil comprises said sizing and said configuring the said plurality of apertures of said coating stencil to optimally accommodate a viscous material viscosity of approximately 62,000 centipoise at a temperature of approximately 77° F (25 °C).

38. (Withdrawn) The method according to claim 31, wherein said providing a coating stencil comprises arranging the plurality of apertures of said coating stencil generally parallel to each other and spaced so as to have a centerline pitch between apertures of .020 inches (.051 cm).

39. (Withdrawn) The method according to claim 31, wherein said providing a coating stencil comprises providing said coating stencil having 23 apertures.

40. (Withdrawn) The method according to claim 31, wherein said providing a coating stencil comprises said sizing said plurality of apertures of said coating stencil to be .260 inches (.660 cm) in length and .010 inches (.025 cm) in width.

41. (Withdrawn) The method according to claim 31, further comprising providing a vacuum on a bottom side of said coating stencil.

42. (currently amended) The method according to claim 1, further comprising providing a circulation mechanism configured to circulate ~~said~~ the viscous material and maintain uniformity of ~~said~~ the viscous material.

43. (currently amended) The method according to claim 1, wherein ~~said~~ providing a receptacle comprises providing ~~said~~ the receptacle including a housing having an inflow chamber in fluid communication with ~~said~~ the at least one viscous material pool.

44. (currently amended) The method according to claim 1, further comprising adjusting ~~said~~ the at least one stop to a desired height.

45. (Withdrawn) The method according to claim 1, wherein said providing at least one stop comprises providing a buoyant stop independent from said receptacle.

46. (Withdrawn) The method according to claim 45, wherein said placing at least one semiconductor element against said at least one stop comprises pressing said at least one semiconductor element down on the buoyant stop to displace said viscous material upward toward said specific portion of said at least one semiconductor element.

47. (Withdrawn) The method according to claim 46, further comprising providing a mechanism to press said at least one semiconductor element against said at least one stop and a pressure sensor associated with said buoyant stop, wherein said pressure sensor triggers the mechanism to stop pressing when a predetermined pressure is attained.

48. (currently amended) A method of applying viscous material to at least one semiconductor element, ~~said~~ the method comprising:

providing a receptacle including at least one viscous material pool containing viscous material having an exposed surface extending upwardly to a height therein, ~~said~~ the at least one viscous material pool including at least one outlet to present at least ~~said~~ the exposed surface of ~~said~~ the viscous material;

providing at least one stop proximate ~~said~~ the receptacle;

extruding ~~said~~ the viscous material through a coating stencil to reveal ~~said~~ the exposed surface;

providing at least one semiconductor element having a bottom surface and at least one other surface above the bottom surface and

positioning the at least one semiconductor element proximate ~~said~~ the at least one stop such that only a specific portion of ~~said~~ the bottom surface of the at least one semiconductor element contacts ~~said~~ the exposed surface of ~~said~~ the viscous material.

49. (currently amended) The method according to claim 48, wherein ~~said~~ providing a receptacle including at least one viscous material pool containing viscous material comprises providing ~~said~~ the at least one viscous material pool containing adhesive or polyimide.

50. (currently amended) The method according to claim 49, wherein ~~said~~ providing a receptacle including at least one viscous material pool containing viscous material comprises providing ~~said~~ the at least one a viscous material pool containing adhesive selected from the group consisting of thermoplastics, thermoset resins, flowable pastes, and B-stage adhesive materials.

51. (currently amended) The method according to claim 49, wherein ~~said~~ positioning at least one semiconductor element proximate ~~said~~ the at least one stop comprises extending ~~said~~ the specific portion of ~~said~~ the at least one semiconductor element beyond a top surface of the exposed surface of ~~said~~ the viscous material.

52. (currently amended) The method according to claim 51, wherein ~~said~~ extending comprises immersing ~~said~~ the specific portion of ~~said~~ the at least one semiconductor element beyond ~~said~~ the top surface of the exposed surface of ~~said~~ the viscous material for a time sufficient to allow the viscous material to wet ~~said~~ the specific portion of ~~said~~ the at least one semiconductor element.

53. (currently amended) The method according to claim 52, wherein ~~said~~ extending comprises immersing ~~said~~ the specific portion of ~~said~~ the at least one semiconductor element beyond ~~said~~ the top surface of the exposed surface of ~~said~~ the viscous material for approximately 10 to 25 milliseconds.

54. (currently amended) The method according to claim 48, wherein ~~said~~ positioning at least one semiconductor element proximate ~~said~~ the at least one stop comprises extending ~~said~~ the specific portion of ~~said~~ the at least one semiconductor element beyond a top surface of the exposed surface of ~~said~~ the viscous material without breaking the surface tension of ~~said~~ the viscous material.

55. (currently amended) The method according to claim 48, wherein ~~said~~ providing a receptacle comprises providing a receptacle shaped such that the exposed surface of the viscous material is presented in a precise location and configuration.

56. (currently amended) The method according to claim 48, wherein ~~said~~ positioning at least one semiconductor element comprises positioning at least one of a lead finger, a carrier substrate, a bond pad and a trace pad above ~~said~~ the at least one outlet.

57. (currently amended) The method according to claim 48, wherein ~~said~~ positioning at least one semiconductor element comprises aligning ~~said~~ the at least one semiconductor element above ~~said~~ the at least one outlet.

58. (currently amended) The method according to claim 48, wherein ~~said~~ positioning at least one semiconductor element comprises biasing ~~said~~ the at least one semiconductor element downward proximate the viscous material.

59. (currently amended) The method according to claim 58, wherein ~~said~~ biasing comprises providing at least one of a hydraulic biasing mechanism, a pneumatic biasing mechanism, and an electrically-powered biasing mechanism configured to place ~~said~~ the at least one semiconductor element proximate ~~said~~ the at least one stop.

60. (currently amended) The method according to claim 58, wherein ~~said~~ positioning at least one semiconductor element comprises raising ~~said~~ the at least one viscous material pool upward proximate ~~said~~ the at least one semiconductor element.

61. (currently amended) The method according to claim 48, further comprising pumping ~~said~~ the viscous material into ~~said~~ the at least one viscous material pool.

62. (currently amended) The method according to claim 48, wherein ~~said~~ extruding comprises pumping ~~said~~ the viscous material through ~~said~~ the coating stencil to another height above ~~said~~ the at least one stop sufficient to contact ~~said~~ the specific portion of ~~said~~ the at least one semiconductor element.

63. (currently amended) The method according to claim 48, wherein ~~said~~ positioning at least one semiconductor element comprises applying a layer of ~~said~~ the viscous material having a thickness between 0.1 to 15 mils on ~~said~~ the specific portion of ~~said~~ the at least one semiconductor element.

64. (currently amended) The method according to claim 48, further comprising coating at least ~~said~~ the specific portion of the at least one semiconductor element with a surfactant prior to ~~said~~ the positioning ~~said~~ the at least one semiconductor element proximate ~~said~~ the at least one stop.

65. (currently amended) The method according to claim 48, further comprising adding an adhesion promoter to ~~said~~ the viscous material, wherein ~~said~~ the adhesion promoter is selected from the group consisting of silane, siloxane, and polyimide siloxane.

66. (Withdrawn) The method according to claim 48, wherein said extruding comprises leveling said exposed surface.

67. (Withdrawn) The method according to claim 48, further comprising controlling the height of said exposed surface of said viscous material by employing a detection mechanism.

68. (Withdrawn) The method according to claim 67, wherein said controlling the height of said exposed surface of said viscous material comprises:
delivering said viscous material to said at least one viscous material pool;
providing said detection mechanism comprising a transmitter, a receiver, and a control signal;

determining the height of said exposed surface with said transmitter and said receiver; and generating said control signal to control delivery of said viscous material to said at least one viscous material pool.

69. (Withdrawn) The method according to claim 68, wherein said generating said control signal comprises triggering a pump to stop delivering said viscous material to said at least one viscous material pool when a desired height of said exposed surface is achieved.

70. (Withdrawn) The method according to claim 68, wherein said generating said control signal comprises triggering a valve to shut to prevent said viscous material from entering said at least one viscous material pool.

71. (Withdrawn) The method according to claim 68, wherein said providing said detection mechanism comprises providing a laser transmitter, wherein a light beam from said laser transmitter is altered by the exposed surface and wherein the receiver detects the alteration of said light beam and then generates said control signal.

72. (Withdrawn) The method according to claim 68, wherein said providing said detection mechanism comprises providing an ultrasonic transmitter, wherein an ultrasonic sound wave from said ultrasonic transmitter is altered by the exposed surface and wherein the receiver detects the alteration in the ultrasonic sound wave and then generates the control signal.

73. (currently amended) The method according to claim 48, wherein ~~said~~ extruding the ~~said~~ viscous material through a coating stencil to reveal ~~said~~ the exposed surface comprises providing ~~said~~ the coating stencil including:
a generally planar horizontal top surface; and

a plurality of apertures aligned to apply ~~said~~ the viscous material to ~~said~~ the specific portion of ~~said~~ the at least one semiconductor element, ~~said~~ the plurality of apertures sized and configured to control extrusion of ~~said~~ the viscous material through ~~said~~ the coating stencil to increase the exposed surface of ~~said~~ the viscous material.

74. (currently amended) The method according to claim 73, wherein ~~said~~ providing ~~said~~ the coating stencil comprises providing a coating stencil wherein the plurality of apertures are substantially rectangular in shape.

75. (currently amended) The method according to claim 73, wherein ~~said~~ providing ~~said~~ the coating stencil comprises providing a coating stencil wherein the plurality of apertures of ~~said~~ the coating stencil are substantially square in shape.

76. (currently amended) The method according to claim 73, wherein ~~said~~ providing ~~said~~ the coating stencil comprises ~~said~~ the sizing and ~~said~~ the configuring ~~said~~ the plurality of apertures of ~~said~~ the coating stencil as a result of considering a viscosity of ~~said~~ the viscous material.

77. (currently amended) The method according to claim 76, wherein ~~said~~ providing ~~said~~ the coating stencil comprises ~~said~~ the sizing and ~~said~~ the configuring ~~said~~ the plurality of apertures of ~~said~~ the coating stencil to suit a viscous material viscosity ranging from approximately 1000 to 500,000 centipoise.

78. (currently amended) The method according to claim 76, wherein ~~said~~ providing ~~said~~ the coating stencil comprises ~~said~~ the sizing and ~~said~~ the configuring the plurality of apertures of ~~said~~ the coating stencil to optimally accommodate a viscous material viscosity of approximately 62,000 centipoise.

79. (currently amended) The method according to claim 76, wherein ~~said~~ providing ~~said~~ the coating stencil comprises ~~said~~ the sizing and ~~said~~ the configuring the plurality of apertures of ~~said~~ the coating stencil to optimally accommodate a viscous material viscosity of approximately 62,000 centipoise at a temperature of approximately 77° F (25 °C).

80. (currently amended) The method according to claim 73, wherein ~~said~~ providing ~~said~~ the coating stencil comprises arranging the plurality of apertures of ~~said~~ the coating stencil generally parallel to each other and are spaced so as to have a centerline pitch between apertures of .020 inches (.051 cm).

81. (currently amended) The method according to claim 73, wherein ~~said~~ providing ~~said~~ the coating stencil comprises providing ~~said~~ the coating stencil having 23 apertures.

82. (currently amended) The method according to claim 73, wherein ~~said~~ providing ~~said~~ the coating stencil comprises ~~said~~ the sizing the plurality of apertures of ~~said~~ the coating stencil to be .260 inches (.660 cm) in length and .010 inches (.025 cm) in width.

83. (currently amended) The method according to claim 48, further comprising providing a vacuum on a bottom side of ~~said~~ the coating stencil.

84. (currently amended) The method according to claim 48, further comprising providing a circulation mechanism configured to circulate ~~said~~ the viscous material and maintain uniformity of ~~said~~ the viscous material.

85. (currently amended) The method according to claim 48, wherein ~~said~~ providing a receptacle comprises providing ~~said~~ the receptacle including a housing having an inflow chamber in fluid communication with ~~said~~ the at least one viscous material pool.

86. (currently amended) The method according to claim 48, further comprising adjusting ~~said~~ the at least one stop to a desired height.

87. (Withdrawn) The method according to claim 48, wherein ~~said~~ providing at least one stop comprises providing a buoyant stop independent from ~~said~~ the receptacle.

88. (Withdrawn) The method according to claim 87, wherein ~~said~~ positioning at least one semiconductor element proximate ~~said~~ the at least one stop comprises pressing ~~said~~ the at least one semiconductor element down on the buoyant stop to displace said viscous material upward toward ~~said~~ the specific portion of ~~said~~ the at least one semiconductor element.

89. (Withdrawn) The method according to claim 88, further comprising providing a mechanism to press ~~said~~ the at least one semiconductor element against ~~said~~ the at least one stop and a pressure sensor associated with ~~said~~ the buoyant stop, wherein ~~said~~ the pressure sensor triggers the mechanism to stop pressing when a predetermined pressure is attained.